

One section is devoted to the display of two hundred samples of rhyolite, showing various kinds of fluxion and spherulitic structure, and collected from Mercury Bay, Tairua, Waihi, Owaharoa, Hikutaia, Omahu, and the headwaters of the Kauaeranga. This rock, which is younger than and overlies the gold-bearing andesites, is generally considered unfavourable for gold, but some samples of rhyolite are exhibited with quartz attached which shows gold freely. Underneath the rhyolites are set out about one hundred and fifty samples of andesites, showing hard bars, kindly country, tuffs, breccia, &c.; while there is a complete series showing all the gradations between hard blue and soft white decomposed andesite as met with in the mines. The classes of rock most and least favourable for gold are well illustrated.

One hundred and fifty samples of gold-bearing quartz, typical of the reefs of the Hauraki Peninsula and other parts of New Zealand, are shown. Many of these have attached to them their assay value in gold and silver, obtained in each case by actually crushing one ton of similar ore and extracting the bullion. The collection shows at a glance what kinds of quartz have been found to carry good values, and which have proved worthless, and should be useful to the prospector for purposes of comparison. Several specimens of quartz showing gold, and samples of New Zealand reefs are placed alongside of quartz from other parts of the world for comparison.

The minerals found associated with the gold in the reefs are illustrated by one hundred or more specimens, consisting chiefly of calcite, stibnite, blende, galena, copper, iron and manganese ores, barytes, &c.

One division of the show-cases is set aside for the exhibition of type samples of the ordinary rocks and minerals from all parts of the world. These include two hundred minerals and one hundred rock samples, all properly arranged and classified, while a separate case is devoted to the commonest rock-forming minerals. These, together with the four hundred fossils—two hundred New Zealand and two hundred foreign—are arranged so as to afford an easy object-lesson to mining students.

A few of the New Zealand coals are also shown, but I hope to be able to make this collection more complete as time goes on.

The museum also includes a fine collection of Tasmanian minerals and rocks, and a series of nickel and chrome iron ores, sent by Captain Maning, from New Caledonia.

An extremely interesting series of exhibits is that comprising one hundred samples of crude ore, fluxes, slags, skimmings, antimony dross, lead and bullion, in connection with the smelting process of ore-treatment, which was obtained through the courtesy of Mr. F. E. Wood, late refiner at Broken Hill. It will prove of great value to students, miners, and metallurgists.

Mention may be made of some of the other exhibits, viz.: Westland rocks, donated by the Government Geologist; a set of limestones given by Mr. George Wilson; oil-shale and other South Island samples forwarded by Mr. Hayes, Inspecting Engineer of Mines; and samples of cinnabar and fossil leaves sent by Mr. Stevenson from his mine at Maungakirikiri. The museum also contains models of shafts, pumps, &c., donated by the Mines Department, as well as models of underground workings, shafts, poppet-heads, and safety appliances constructed by the students of the school. Altogether there are about three thousand exhibits, all of which have been named and labelled, but it is my intention later on to affix to each specimen a properly printed ticket with descriptions of the different sets of exhibits. The museum is open to the public on Thursdays, and visitors at other times are shown over on application to myself. Already a large number of mining men and visitors have viewed the collection, and have expressed their appreciation of its value to the community.

The thanks of the council as well as my own are due to Messrs. Hayes, McKay, Wilson, Wood, Maning, Park, Morgan, and numerous other gentlemen who have contributed samples, as well as to my students, Messrs. Graham, Whitley, Hughes, Barrance, Clarke, and Grayden, who have from time to time forwarded collections of rocks and minerals.

Personally, besides collecting a large number of the exhibits now on view, I have had the pleasure of making a gift to the council for the museum of the whole of my own private collection of minerals, and I have great hopes that the museum will increase in size and usefulness, and prove a valuable addition to the educational power of the Thames School.

My thanks are due to Messrs. W. H. Baker and C. A. Banks for assistance in the arrangement of the exhibits, a matter which required much time and labour.

The number of assays made for the public for the year is as follows:—

Number of public assays	...	...	...	...	148
Number of assays in connection with the experimental plant	...	...	...	...	156
Total assays	...	...	...	...	304

These assays were made in duplicate by the staff of the school in the separate assay-room specially built for public work, and which is entirely detached from the students' portion of the institution. During the last month, owing to the laboratory of the Government Analyst at Wellington undergoing repairs, a number of assays have been made for the Mines Department.

In the experimental plant attached to the school, eighteen parcels of ore, of an aggregate weight of 9½ tons, have been treated, viz.:—six parcels, weighing 12,880 lb., were pan-amalgamated; four parcels, weighing 6,560 lb., were cyanided; six, weighing 1,800 lb. were treated in berdans; and two parcels of amalgam from the Sheet Anchor Claim, Omahu, from which parcels of ore have been sent to the school for treatment, were cleaned and retorted. The total value of the bullion recovered amounted to £130 15s., and the bullion from each parcel was returned to the owner on completion of the experimental treatment along with the report. The average percentage extractions for the year were 88·6 per cent. of the value recovered by the pan-amalgamation process, and 70·5 per cent. by the cyanide process. The details of each parcel, the weight, assay value, and extraction of gold, silver, and value being shown in the table attached hereto.